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29989 7590 03/02/2010

HICKMAN PALERMO TRUONG & BECKER, LLP
2055 GATEWAY PLACE
SUITE 550
SAN JOSE, CA 95110

EXAMINER

JOHNSON, CARLTON

ART UNIT

PAPER NUMBER

2436

DATE MAILED: 03/02/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/822,927

04/12/2004

Eliot Lear

50325-0864

4441

TITLE OF INVENTION: METHOD FOR VERIFYING CONFIGURATION CHANGES OF NETWORK DEVICES USING DIGITAL SIGNATURES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$0	\$0	\$1510	06/02/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

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B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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29989 7590 03/02/2010

HICKMAN PALERMO TRUONG & BECKER, LLP
2055 GATEWAY PLACE
SUITE 550
SAN JOSE, CA 95110

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/822,927 04/12/2004 Eliot Lear 50325-0864 4441

TITLE OF INVENTION: METHOD FOR VERIFYING CONFIGURATION CHANGES OF NETWORK DEVICES USING DIGITAL SIGNATURES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$0 \$0 \$1510 06/02/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
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JOHNSON, CARLTON 2436 713-176000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,927	04/12/2004	Eliot Lear	50325-0864	4441
29989	7590	03/02/2010	EXAMINER	
HICKMAN PALERMO TRUONG & BECKER, LLP 2055 GATEWAY PLACE SUITE 550 SAN JOSE, CA 95110			JOHNSON, CARLTON	
			ART UNIT	PAPER NUMBER
			2436	
DATE MAILED: 03/02/2010				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 673 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 673 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/822,927	LEAR, ELIOT	
	Examiner	Art Unit	
	CARLTON V. JOHNSON	2436	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11-30-2009.
2. ☒ The allowed claim(s) is/are 1, 4-21, 23-25, 27-29, 31, 32, 34-37, 39-42, 44-62.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

/Carlton V. Johnson/
Examiner, Art Unit 2436

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Stoycho D. Draganoff Registration No. 56,181 on February 11, 2010.

The application has been amended as follows:

Claims 1, 5, 8, 12, 15, 16, 17, 18, 20, 21, 25, 29, 48, 52, 55 - 62 have been amended as follows:

1. (Currently Amended) A method, comprising the computer-implemented steps of:
receiving trust information defining one or more trusted signatories;
receiving, in association with a particular configuration directive, security information defining a number of required signatures and required principals;
receiving configuration information comprising a hostname, one or more configuration directives for a host network element associated with the hostname, and two or more digital signatures of the hostname and the one

or more configuration directives;

wherein the configuration information includes the particular configuration directive;

wherein the two or more digital signatures comprise a first digital signature of a first portion of the one or more configuration directives by a first user, and a second digital signature of a second portion of the one or more configuration directives by a second user;

receiving signature group data representing a collective authority and comprising a first identifier that identifies the first user responsible for the first portion of the one or more configuration directives and a second identifier that identifies the second user responsible for the second portion of the one or more configuration directives;

wherein the configuration information specifies that the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;

attempting to verify the two or more digital signatures based on the trust information, the signature group data, and the security information;

verifying that the two or more digital signatures are valid and that two or more principals respectively associated with the two or more digital signatures have the collective authority to perform the one or more configuration directives on the host network element;

~~wherein, in accordance with the collective authority, the first user is responsible~~

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~~for the first portion of the one or more configuration directives, the second user is responsible for the second portion of the one or more configuration directives, and the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;~~

applying the one or more configuration directives to the host network element

only when the two or more digital signatures are verified successfully;

wherein applying the one or more configuration directives comprises applying the

particular configuration directive only when the configuration information

has the number of required signatures by the required principals;

wherein the steps of the method are performed by the host network element.

8. (Currently Amended) A method, comprising the computer-implemented steps of:

receiving trust information defining one or more trusted signatories;

receiving configuration control information that includes a time period during

which a valid digital signature is required for applying one or more

particular configuration directives;

receiving configuration information comprising a hostname, one or more

configuration directives for a host network element associated with the

hostname, one or more digital signatures of the hostname and the one or

more configuration directives, and a date-time value;

receiving signature group data representing a collective authority and comprising

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a first identifier that identifies a first user responsible for a first portion of the one or more configuration directives and a second identifier that identifies a second user responsible for a second portion of the one or more configuration directives;

wherein the configuration information specifies that the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;

determining if the date-time value is within the time period;

determining if the one or more configuration directives have been previously received during the time period; and

only when the date-time value is within the time period and the one or more configuration directives have not been previously received during the time period, attempting to verify the one or more digital signatures based on the trust information and the signature group data, and applying the one or more configuration directives to the host network element only when the one or more digital signatures are verified successfully;

wherein the steps of the method are performed by the host network element.

12. (Currently Amended) A method as recited in Claim 8, further comprising the steps of:

verifying that the one or more digital signatures ~~is~~ are valid and that one or more principals respectively associated with the one or more digital signatures have the collective authority to perform the one or more configuration

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directives on the host network element.

15. (Currently Amended) A method as recited in Claim 8, wherein the one or more digital signatures use public key cryptography, and wherein public keys for the one or more digital signatures are stored on the host.
16. (Currently Amended) A method as recited in Claim 8, wherein the one or more digital signatures use public key cryptography, wherein public keys for the one or more digital signatures are stored on a key server and retrieved from the key server as part of attempting to validate the one or more digital signatures.
17. (Currently Amended) A method as recited in Claim 8, wherein the one or more digital signatures use public key cryptography, and wherein public keys for the one or more digital signatures are received in a digital certificate and extracted from the digital certificate as part of attempting to validate the one or more digital signatures.
18. (Currently Amended) A method for verifying configuration changes for network devices using digital signatures, comprising the computer-implemented steps of:
 - receiving a public key for a user of the network devices;
 - receiving configuration control information that includes a time period during which a valid digital signature is required for applying one or more particular configuration directives to a specified network device;
 - receiving configuration information comprising a hostname, one or more configuration directives for the specified network device associated with

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the hostname, one or more digital signatures of the hostname and the one or more configuration directives, and a date-time value;

receiving signature group data representing a collective authority and comprising a first identifier that identifies a first user responsible for a first portion of the one or more configuration directives and a second identifier that identifies a second user responsible for a second portion of the one or more configuration directives;

wherein the configuration information specifies that the first portion and the second portion of the one or more configuration directives are to be applied to the specified network device at the same time;

determining if the date-time value is within the time period;

determining if the one or more configuration directives have been previously received during the time period, by generating a secure hash of the one or more configuration directives and determining if the secure hash is found in memory; and

only when the date-time value is within the time period and the one or more configuration directives have not been previously received during the time period, performing the steps of:

attempting to verify the one or more digital signatures based on using the signature group data and generating a secure hash of the one or more configuration directives using the public key and comparing the secure hash to the one or more digital signatures,

and applying the one or more configuration directives to the specified network device only when the one or more digital signatures are verified successfully;

wherein the steps of the method are performed by the specified network device.

20. (Currently Amended) A method as recited in any of Claims 8 or 18, wherein the one or more digital signatures comprise a first digital signature of [[a]] the first portion of the one or more configuration directives by [[a]] the first user, a second digital signature of [[a]] the second portion of the one or more configuration directives by [[a]] the second user, and a third digital signature by a third user, wherein the third digital signature is applied to a resultant of the first digital signature and the second digital signature.

21. (Currently Amended) A computer-readable volatile or non-volatile medium storing one or more sequences of instructions for verifying configuration changes for network devices using digital signatures, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

receiving trust information defining one or more trusted signatories;

receiving, in association with a particular configuration directive, security information defining a number of required signatures and required principals;

receiving configuration information comprising a hostname, one or more configuration directives for a host network element associated with the

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hostname, and two or more digital signatures of the hostname and the one or more configuration directives;

wherein the configuration information includes the particular configuration directive;

wherein the two or more digital signatures comprise a first digital signature of a first portion of the one or more configuration directives by a first user, and a second digital signature of a second portion of the one or more configuration directives by a second user;

receiving signature group data representing a collective authority and comprising a first identifier that identifies the first user responsible for the first portion of the one or more configuration directives and a second identifier that identifies the second user responsible for the second portion of the one or more configuration directives;

wherein the configuration information specifies that the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;

attempting to verify the two or more digital signatures based on the trust information, the signature group data, and the security information;

verifying that the two or more digital signatures are valid and that two or more principals respectively associated with the two or more digital signatures have the collective authority to perform the one or more configuration directives on the host network element;

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~~wherein, in accordance with the collective authority, the first user is responsible for the first portion of the one or more configuration directives, the second user is responsible for the second portion of the one or more configuration directives, and the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;~~

applying the one or more configuration directives to the host network element

only when the two or more digital signatures are verified successfully;

wherein applying the one or more configuration directives comprises applying the

particular configuration directive only when the configuration information

has the number of required signatures by the required principals.

25. (Currently Amended) An apparatus for verifying configuration changes for network devices using digital signatures, comprising:

means for receiving trust information defining one or more trusted signatories;

means for receiving, in association with a particular configuration directive,

security information defining a number of required signatures and required principals;

means for receiving configuration information comprising a hostname, one or

more configuration directives for a host network element associated with

the hostname, and two or more digital signatures of the hostname and the

one or more configuration directives;

wherein the configuration information includes the particular configuration

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directive;

wherein the two or more digital signatures comprise a first digital signature of a first portion of the one or more configuration directives by a first user, and a second digital signature of a second portion of the one or more configuration directives by a second user;

means for receiving signature group data representing a collective authority and comprising a first identifier that identifies the first user responsible for the first portion of the one or more configuration directives and a second identifier that identifies the second user responsible for the second portion of the one or more configuration directives;

wherein the configuration information specifies that the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;

means for attempting to verify the two or more digital signatures based on the trust information, the signature group data, and the security information;

means for verifying that the two or more digital signatures are valid and that two or more principals respectively associated with the two or more digital signatures have the collective authority to perform the one or more configuration directives on the host network element;

~~wherein, in accordance with the collective authority, the first user is responsible for the first portion of the one or more configuration directives, the second user is responsible for the second portion of the one or more configuration~~

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~~directives, and the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;~~

means for applying the one or more configuration directives to the host network element only when the two or more digital signatures are verified successfully;

wherein the means for applying the one or more configuration directives comprise means for applying the particular configuration directive only when the configuration information has the number of required signatures by the required principals.

29. (Currently Amended) An apparatus for verifying configuration changes for network devices using digital signatures, comprising:
- a network interface that is coupled to the data network for receiving one or more packet flows therefrom;
 - a processor;
 - one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:
 - receiving trust information defining one or more trusted signatories;
 - receiving, in association with a particular configuration directive, security information defining a number of required signatures and required principals;
 - receiving configuration information comprising a hostname, one or more

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configuration directives for a host network element associated with the hostname, and two or more digital signatures of the hostname and the one or more configuration directives;

wherein the configuration information includes the particular configuration directive;

wherein the two or more digital signatures comprise a first digital signature of a first portion of the one or more configuration directives by a first user, and a second digital signature of a second portion of the one or more configuration directives by a second user;

receiving signature group data representing a collective authority and comprising a first identifier that identifies the first user responsible for the first portion of the one or more configuration directives and a second identifier that identifies the second user responsible for the second portion of the one or more configuration directives;

wherein the configuration information specifies that the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;

attempting to verify the two or more digital signatures based on the trust information, the signature group data, and the security information;

verifying that the two or more digital signatures are valid and that two or more principals respectively associated with the two or more digital signatures have the collective authority to perform the one or more

configuration directives on the host network element;

~~wherein, in accordance with the collective authority, the first user is responsible for the first portion of the one or more configuration directives, the second user is responsible for the second portion of the one or more configuration directives, and the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;~~

applying the one or more configuration directives to the host network element only when the two or more digital signatures are verified successfully;

wherein applying the one or more configuration directives comprises applying the particular configuration directive only when the configuration information has the number of required signatures by the required principals.

48. (Currently Amended) A computer-readable volatile or non-volatile medium storing one or more sequences of instructions which, when executed by one or more processors, cause the one or more processors to perform steps comprising:
- receiving trust information defining one or more trusted signatories;
- receiving configuration control information that includes a time period during which a valid digital signature is required for applying one or more particular configuration directives;
- receiving configuration information comprising a hostname, one or more

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configuration directives for a host network element associated with the hostname, one or more digital signatures of the hostname and the one or more configuration directives, and a date-time value;

receiving signature group data representing a collective authority and comprising a first identifier that identifies a first user responsible for a first portion of the one or more configuration directives and a second identifier that identifies a second user responsible for a second portion of the one or more configuration directives;

wherein the configuration information specifies that the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time;

determining if the date-time value is within the time period;

determining if the one or more configuration directives have been previously received during the time period; and

only when the date-time value is within the time period and the one or more configuration directives have not been previously received during the time period, attempting to verify the one or more digital signatures based on the trust information and the signature group data, and applying the one or more configuration directives to the host network element only when the one or more digital signatures are verified successfully.

52. (Currently Amended) The computer-readable volatile or non-volatile medium as recited in Claim 48, wherein the one or more sequences of

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instructions further comprise instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of: verifying that the one or more digital signatures are valid and that one or more principals respectively associated with the one or more digital signatures have the collective authority to perform the one or more configuration directives on the host network element.

55. (Currently Amended) The computer-readable volatile or non-volatile medium as recited in Claim 48, wherein the one or more digital signatures use public key cryptography, and wherein public keys for the one or more digital signatures are stored on the host network element.
56. (Currently Amended) The computer-readable volatile or non-volatile medium as recited in Claim 48, wherein the one or more digital signatures use public key cryptography, wherein public keys for the one or more digital signatures are stored on a key server and retrieved from the key server as part of attempting to validate the one or more digital signatures.
57. (Currently Amended) The computer-readable volatile or non-volatile medium as recited in Claim 48, wherein the one or more digital signatures use public key cryptography, and wherein public keys for the one or more digital signatures are received in a digital certificate and extracted from the digital certificate as part of attempting to validate the one or more digital signatures.
58. (Currently Amended) The computer-readable volatile or non-volatile medium as recited in Claim 48, wherein the one or more digital signatures

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comprise a first digital signature of the one or more configuration directives by [[a]] the first user, and a second digital signature by [[a]] the second user, wherein the second digital signature is applied to a resultant of the first digital signature.

59. (Currently Amended) The computer-readable volatile or non-volatile medium as recited in Claim 48, wherein the one or more digital signatures comprise a first digital signature of [[a]] the first portion of the one or more configuration directives by [[a]] the first user, a second digital signature of [[a]] the second portion of the one or more configuration directives by [[a]] the second user, and a third digital signature by a third user, wherein the third digital signature is applied to a resultant of the first digital signature and the second digital signature.

60. (Currently Amended) A computer-readable volatile or non-volatile medium storing one or more sequences of instructions for verifying configuration changes for network devices using digital signatures, which instructions, when executed by one or more processors, cause the one or more processors to perform steps comprising:

receiving a public key for a user of the network devices;

receiving configuration control information that includes a time period during

which a valid digital signature is required for applying one or more

particular configuration directives to a specified network device;

receiving configuration information comprising a hostname, one or more

configuration directives for the specified network device associated with

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the hostname, one or more digital signatures of the hostname and the one or more configuration directives, and a date-time value;

receiving signature group data representing a collective authority and comprising a first identifier that identifies a first user responsible for a first portion of the one or more configuration directives and a second identifier that identifies a second user responsible for a second portion of the one or more configuration directives;

wherein the configuration information specifies that the first portion and the second portion of the one or more configuration directives are to be applied to the specified network device at the same time;

determining if the date-time value is within the time period;

determining if the one or more configuration directives have been previously received during the time period, by generating a secure hash of the one or more configuration directives and determining if the secure hash is found in memory; and

only when the date-time value is within the time period and the one or more configuration directives have not been previously received during the time period, performing the steps of:

attempting to verify the one or more digital signatures based on using the signature group data and generating a secure hash of the one or more configuration directives using the public key and comparing the secure hash to the one or more digital signatures, and

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applying the one or more configuration directives to the specified network device only when the one or more digital signatures are verified successfully.

61. (Currently Amended) The computer-readable volatile or non-volatile medium as recited in Claim 60, wherein the one or more digital signatures comprise a first digital signature of the one or more configuration directives by [[a]] the first user, and a second digital signature by [[a]] the second user, wherein the second digital signature is applied to a resultant of the first digital signature.
62. (Currently Amended) The computer-readable volatile or non-volatile medium as recited in Claim 60, wherein the one or more digital signatures comprise a first digital signature of [[a]] the first portion of the one or more configuration directives by [[a]] the first user, a second digital signature of [[a]] the second portion of the one or more configuration directives by [[a]] the second user, and a third digital signature by a third user, wherein the third digital signature is applied to a resultant of the first digital signature and the second digital signature.

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance.

Claims **1, 8, 18, 21, 25, 29, 48, 60** are allowed based on the following:

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The prior art of record, considered individually or in combination, fails to fairly show or suggest: *receiving signature group data representing a collective authority and comprising a first identifier that identifies the first user responsible for the first portion of the one or more configuration directives and a second identifier that identifies the second user responsible for the second portion of the one or more configuration directives; and wherein the configuration information specifies that the first portion and the second portion of the one or more configuration directives are to be applied to the host network element at the same time*, in addition to the other limitations in a manner as recited in claims **1, 4 - 21, 23 - 25, 27 - 29, 31, 32, 34 - 37, 39 - 42, 44 - 62**.

Claims **4 - 7** are allowed due to allowed base claim **1**.

Claims **9 - 17** are allowed due to allowed base claim **8**.

Claims **19, 20** are allowed due to allowed base claim **18**.

Claims **23, 24** are allowed due to allowed base claim **21**.

Claims **27, 28, 39 - 42** are allowed due to allowed base claim **25**.

Claims **31, 32, 34 - 37, 44 - 47** are allowed due to allowed base claim **29**.

Claims **49 - 59** are allowed due to allowed base claim **48**.

Claims **61, 62** are allowed due to allowed base claim **60**.

So as indicated by the above statements, Applicant's arguments have been considered persuasive, in light of the set of claims with limitations as well as the enabling portions of the specification. The dependent claims further limit the independent claims and are considered allowable on the same basis as the

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independent claims as well as for the further limitations set forth.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlton V. Johnson whose telephone number is 571-270-1032. The examiner can normally be reached on Monday thru Friday , 8:00 - 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nasser Moazzami/
Supervisory Patent Examiner, Art Unit 2436

Carlton V. Johnson
Examiner
Art Unit 2436

CVJ
February 1, 2010